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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,603	01/16/2001	Joerg Drescher	225/49512	9440

7590 07/29/2004  
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EXAMINER

HOGAN, MARY C

ART UNIT PAPER NUMBER

2123

DATE MAILED: 07/29/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/759,603

Applicant(s)

DRESCHER ET AL.

Examiner

Mary C Hogan

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 3/13/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. This application has been examined.
2. **Claims 1-20** have been examined and rejected.

***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file, specifically, German Patent Application Number 100 01 484.4, filed 1/15/00.

***Specification***

4. The disclosure is objected to because of the following informalities. Appropriate correction is required.
5. The explanation of Figure 1, elements 6 and 7 are unclear as to whether each element individually contains a sensor and actuator model or whether element 6 contains a sensor model and element 7 contains an actuator model. Specifically, Page 9, line 36-Page 10, line 5 specify "sensor model 6" or an "actuator model 6,7" followed by "sensor/actuator models 6 and/or 7".
6. Page 10, line 29 and Page 12, line 25, the spelling of "analogue" should be changed to "analog" for consistency with "analog/digital" as used throughout the specification.
7. Page 13, line 36-Page 14, line 1, "signal generator" should be associated with element 41 in Figure 3 and "temperature cell" should be associated with element 40 in Figure 3.

***Claim Interpretation***

8. **Claim 12** states "a subordinate regulating loop" and "fast regulation". It is unclear from the claims and the specification what a subordinate regulating loop and fast regulation are. This claim was interpreted to be directed to a feedback loop between the tested component and the drive model to provide variables to the drive model which in turn, create signals that drive the output stages of the signal interfaces.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claim 12** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim states “a subordinate regulating loop” and “fast regulation”. It is unclear from the claims and the specification what a subordinate regulating loop and fast regulation are, making the claim vague and indefinite.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 1-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Wagner et al (Wagner et al, “A Strategy to Verify Chassis Controller Software-Dynamics, Hardware and Automation”, IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans, Vol. 27, No.4, July 1997), herein referred to as **Wagner**.

13. As to **Claims 1 and 2**, **Wagner** teaches an apparatus for simulating an electrical sensor/actuator component comprising: a drive module including a model of the sensor/actuator component (**page 481, column 2, lines 5-9**), said drive module generating interface signals in accordance with signals of said sensor/actuator component (**page 487, section III, lines 14-17**), said drive module further including at least one signal interface (**Figure 5, “Hardware Interfaces”**), wherein at least one signal interface generates, for each said interface connection pin, one of said interface signals corresponding to the electrical signals of the said sensor/actuator component (**page 488, column 1, section A, paragraph 1, lines 7-10**), wherein each of said at least one signal interface includes a control/regulation circuit (**page 488, column 1, section A, second paragraph, lines 3-7**), wherein said apparatus includes modular construction in order to provide a separate signal interface for each interface component (**Figure 5, “Hardware Interfaces”** show a modular design including Powertrain Simulation, Antilock Brake and Motor Load which are all separate signal interfaces).

14. As to **Claims 3 and 13**, **Wagner** teaches the drive model further includes means for calculating mathematical modules for driving at least one signal interface and wherein said module generates real-time signals in order to obtain said interface signals in accordance with the simulated sensor/actuator components at the interface connection pins (**Page 487, section III, lines 9-17 and Figure 5, "Simulation Computer"**).

15. As to **Claims 4 and 14**, it is concluded that since components in a design must be mounted on a printed circuit board, the controller as shown in **Wagner Figure 5**, being an actual hardware component, must be mounted on a printed circuit board. Further, it is concluded that a design on a printed circuit board will include interface connections to any system that is needed to realize the design, allowing connection to the interface pins in the component that will be receiving or transmitting signals to the system.

16. As to **Claims 5,6,15, and 16**, **Wagner** teaches signal interface has an output stage that can function to output power or receive power. **Figure 5** shows the signal interfaces providing two-way communication between the simulated models and the controller. Further, **page 488, column 1, section A, lines 3-10** state that the PSI and ABI signal interfaces perform signal conditioning which is applied to outputs from the controller or from the RTS, signifying that this interface functions to output power (from the RTS) or receive power (from the controller).

17. As to **Claims 7 and 17**, **Wagner** teaches said drive model comprising a computer for providing an equivalent circuit of the sensor/actuator component as said model (**page 481, column 2, lines 3-9**).

18. As to **Claims 8 and 18**, **Wagner** teaches said model is adapted to signals required at an interface connection pin by utilizing specific parameters (**page 488, column 2, second paragraph, lines 11-14**) as an example, wherein the commanded motor current is measured by the interface unit and supplied as input to the motor driver model executing in the simulation computer.

19. As to **Claims 9 and 19**, **Wagner** teaches a fault simulation module for generating one of a line interruption and a short circuit (**Figure 5, "Failure Module" and page 488, column 2, last paragraph**).

20. As to **Claims 10 and 20**, **Wagner** teaches each signal interface has a regulating circuit for adjusting one of voltage and current to a value specified by said model (**page 488, column 1, section A, paragraph 1, section A, paragraph 2, lines 3-14**).

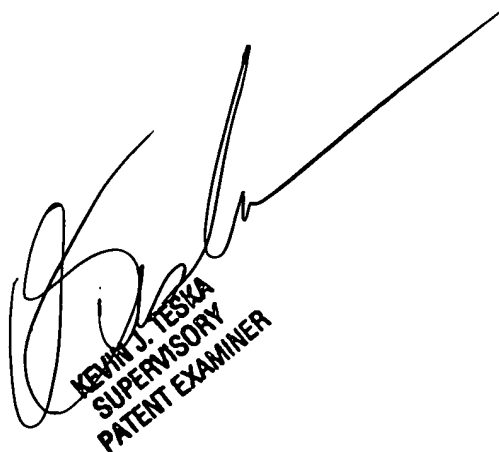
21. As to **Claim 11 and 12**, **Wagner** teaches the regulating circuit includes a feedback arrangement to the drive module in order to provide actual values of regulated variables to said model (**page 488, lines 11-20**).

*Conclusion*

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
23. Raman et al (Raman et al, "Design and Implementation of HIL Simulators for Powertrain Control System Software Development". Proceedings of the American Control Conference, June 1999, pages 709-713) teach a hardware-in-the-loop simulation system including actuator and sensor models.
24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Hogan whose telephone number is 703-305-7838. The examiner can normally be reached on 7:30AM-5PM Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703-305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mary C Hogan  
Examiner  
Art Unit 2123

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